

33. SOME NEW RECORDS OF LEGUMES FROM GARHWAL HIMALAYA

(With six text-figures)

During recent plant explorations in remote localities of Garhwal Himalaya we collected some interesting Fabaceae. After critical study and thorough checking of the literature the specimens have been identified as of species which are new records for the Garhwal Himalaya.

The present communication gives illustrations of the newly recorded taxa, highlighting flowering and fruiting period, habitat, occurrence, approximate distributional range and availability, and collectors herbarium number. The plant specimens after identification were matched with the authentic specimens at the Botanical Survey of India, Northern Circle, Dehradun (BSD) and Forest Research Institute, Dehradun (DD) and deposited in the Department of Botany, H.N.B. Garhwal University (GUH), Srinagar Garhwal.

Astragalus cashmirensis Bunge, Mem. Acad. Sci. St.-Pet. ser. 7, 11:30. 1868 & 12: 34. 1869; Baker in Hook. f., FBI. 2: 127. 1876; Sanjappa, Leg. Ind. 85. 1992. (Fig. 1, A-B).

Flowering and fruiting: July-September.

Distribution: Bhelpuri, Tehri Garhwal, 2800 m a.s.l.

Ecology: Rare, a few plants along waysides in dry as well as moist localities, associated with *Polygonum* sp., *Geum* sp. and grasses.

Specimen examined: L.R.D., GUH-12,314.

Notes: Hooker (1876) and Sanjappa (1992) reported this taxon from Kashmir Himalaya. This is a rare collection as well as new record from Garhwal Himalaya, representing its eastward distribution.

Crotalaria burhia Huch.-Ham. (in Wall., Cat. 5386. 1831-1832, *nom. nud.*) ex Benth. in Hook., London J. Bot. 2: 474. 1843; Baker in Hook. f., FBI. 2: 66. 1876; Sanjappa, Leg. Ind. 117. 1992. (Fig. 2, A-B).

Flowering and fruiting: February-March.

Distribution: Tapovan, Chamoli Garhwal, 1750 m a.s.l.

Ecology: Rare. A limited number of plants occur along roadsides on slopes in dry places and this taxon is associated with *Berberis* sp., *Indigofera* sp. and some grasses.

Specimen examined: L.R.D., GUH-12,251.

Notes: Hooker (1876) reported this species from Punjab, Afghanistan, and Pakistan. This taxon has not been collected from Garhwal and Kumaon Himalaya earlier.

Dalbergia latifolia Roxb., Pl. Corom. 2: 7, t. 113. 1799; Baker in Hook. f., FBI. 2: 231. 1876; Duthie, F.U.G.P. 1: 263. 1903; Sanjappa, Leg. Ind. 137. 1992. (Fig. 3, A-B)

Flowering and fruiting: March-June.

Distribution: Ghasi Ram Naala, Pauri Garhwal, 500 m a.s.l.

Ecology: Uncommon. A limited number of plants have been collected from open fields in dry localities, associated with *Shorea robusta*, *Tectona grandis*, *Pyrus pashia* and *Mallotus* sp.

Specimen examined: L.R.D., GUH-12,204.

Notes: Hooker (1876) and Duthie (1903) reported it from Western Peninsula, Sikkim, Chota Nagpur, and Bundelkhand. However, Sanjappa (1992) mentioned its occurrence in Uttar Pradesh, West Bengal, Nepal and Malaysia. This is a new record for Garhwal as well as Kumaon Himalaya.

Desmodium tortuosum (Swartz) DC., Prod. 2: 332. 1825; Babu, Herb. Fl. Dehradun 137. 1977; Sanjappa, Leg. Ind. 162. 1992. (Fig. 4, A-C).

Flowering and fruiting: November-January.

Distribution: Khankara, Pauri Garhwal, 750 m a.s.l.

Ecology: A limited number of plants found in dry localities on slopes as well as in open fields, along with *Carissa opaca*, *Mimosa himalayana*, *Rhus parviflora*, and *Grewia optiva*.

Specimen examined: L.R.D., GUH-12,285.

Notes: This is a native of tropical America and

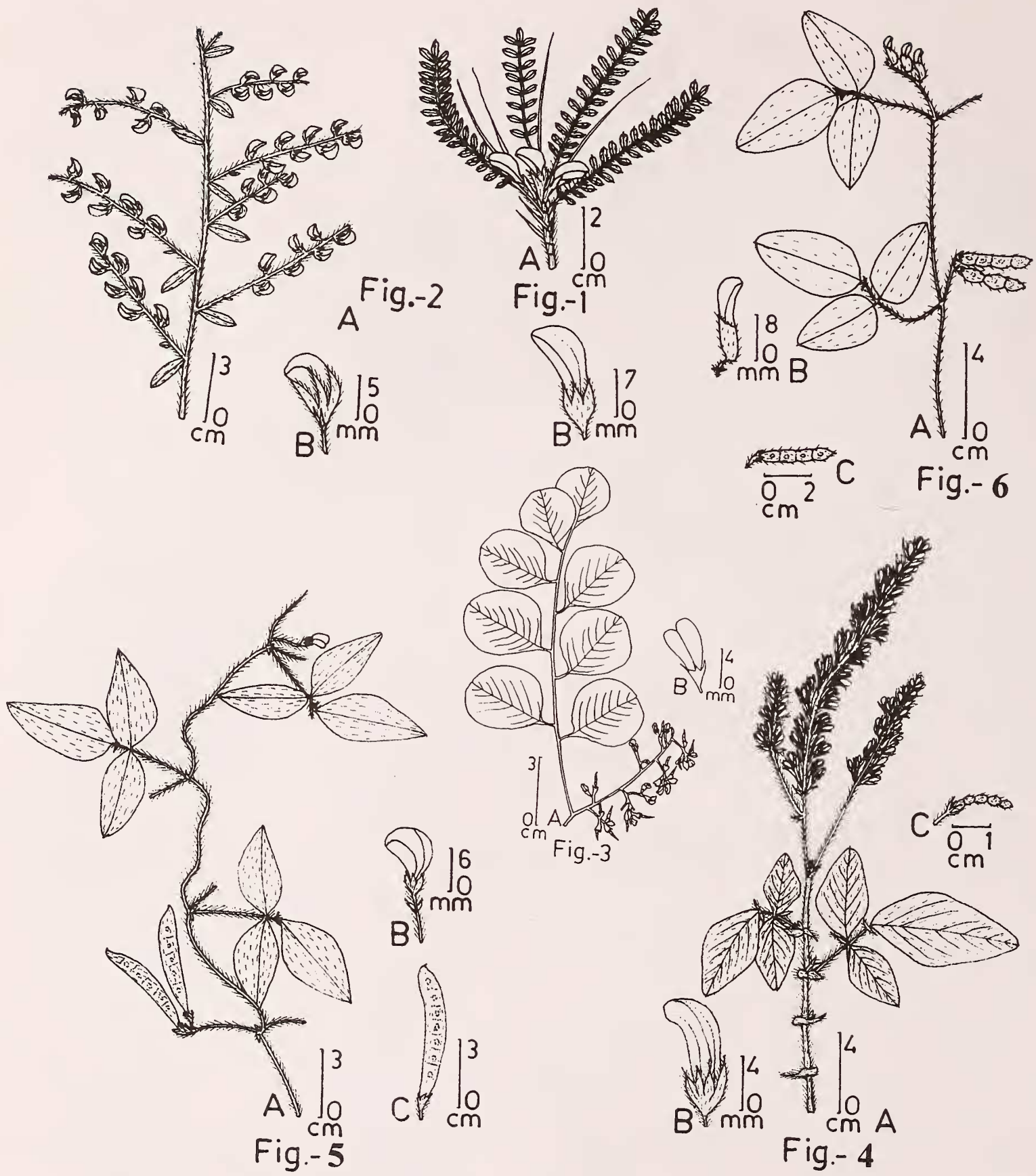


Fig. 1 A-B. *Astragalus cashmirensis* Bunge: A - Flowering branch; B - Flower.

Fig. 2 A-B. *Crotalaria burhia* Buch.-Ham.: A - Flowering branch; B - Flower.

Fig. 3 A-B. *Dalbergia latifolia* Roxb.: A - Flowering branch; B - Flower.

Fig. 4 A-C. *Desmodium tortuosum* (Swartz.) DC.: A - Flowering branch; B - Flower; C - Pod.

Fig. 5 A-C. *Dolichos tenuicaulis* (Baker) Craib: A - Flowering and fruiting branch; B - Flower; C - Pod.

Fig. 6 A-C. *Dumasia villosa* DC. var. *leiocarpa* (Benth.) Baker: A - Flowering and fruiting branch; B - Flower; C - Pod.

it is in the process of naturalization in India. Sanjappa (1992) had mentioned that it is naturalised in Karnataka, Gujarat, and Uttar Pradesh. Babu (1977) recorded it from Sahasradhara, Dehradun. However, it is the first report of its occurrence in inner Garhwal indicating its naturalization to this part of the Himalayas.

Dolichos tenuicaulis (Baker) Craib, Contr. Fl. Siam. Dicot. 66: 1912 in nota & Fl. Siam. Enum. 1: 460. 1928; Sanjappa, Leg. Ind. 167. 1992. (Fig. 5, A - C).

Flowering and fruiting: August-October.

Distribution: Towards Chelusain, Pauri Garhwal, 1600 m a. s. l.

Ecology: Rare. A few plant specimens were collected in dry localities, on slopes along dry streams, and associated with the *Berberis* sp.

Specimen examined: L.R.D., GUH-12,331.

Notes: Recently Sanjappa (1992) noted its occurrence from Sikkim, Meghalaya, Orissa, Nepal, Bhutan, Burma, and China. This species has not been collected earlier in this part of the Himalayas. Hence it is a new record for Garhwal as well as Kumaon Himalayas.

Dumasia villosa DC., Ann. Sci. Nat. Paris, ser. 1, 4: 96. 1825. var. *leiocarpa* (Benth.) Baker in Hook. f., FBI. 2: 183. 1876; Sanjappa, Leg. Ind. 168. 1992. (Fig. 6, A - C).

Flowering and fruiting: September-

December.

Distribution: Pinswar Road, Tehri Garhwal, 1800 m a.s.l.

Ecology: Rare. A few plants occur along the roadsides on walls, associated with *Eupatorium* sp., *Berberis* sp. and under the shade of trees.

Specimen examined: L.R.D., GUH-12,346.

Notes: Hooker (1876) and Sanjappa (1992) recorded its occurrence in Sikkim, Arunachal Pradesh, Nepal, Bhutan, Sri Lanka, Burma, Thailand and China. This taxon has not been collected earlier from this part of the Himalayas. This is a new record for Garhwal and Kumaon Himalayas.

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34. STOMATA ON SEED OF *BAUHINIA PURPUREA* L. (LEGUMINOSAE: CAESALPINIOIDEAE)

(With a text-figure)

Rugenstein and Lersten (1981, *Amer. J. Bot.* 68(6): 873-876) reported the presence of stomata on seeds of some species of *Bauhinia* based mainly on SEM observations. In *B. purpurea* L. they found that the stomata on mature seeds are deformed and partially obstructed by surrounding epidermal cells which retain guard cell appearance but during a SEM study following usual method on the testa surface pattern we found that some of the stomata on mature

seeds of *B. purpurea* may also be normal in appearance (Fig. 1). Both the types of stomata are, however, recessed and lack subsidiary cells.

Mature seeds were collected in the Indian Botanic Garden. Fruiting voucher from the plant (*Bandyopadhyay* 15206) has been deposited in CAL.

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